

WITK The Spark Gap

APRIL 1980

Book VI Vol IV

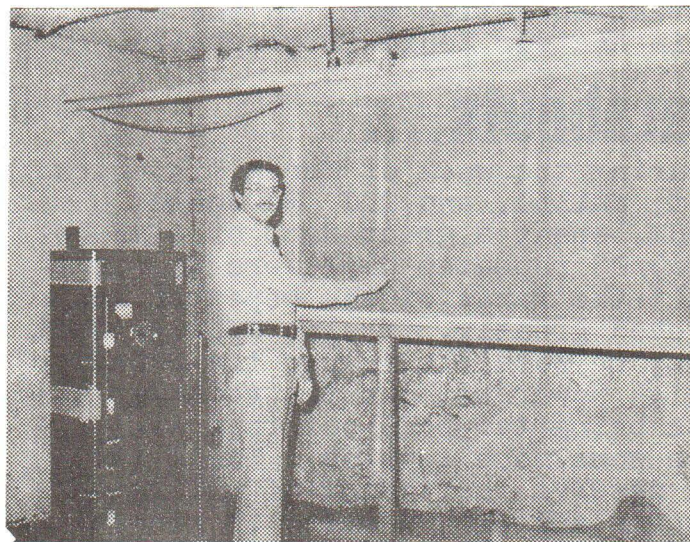
Official Journal of the Wellesley Amateur Radio Society

Hearabouts....

At the March 6th meeting, we were privileged to Have Mike Adlerstein, K1FB, the author of our monthly "Time-It" column as speaker. His topic was the contents of the ham shack, especially concerning the advantages and many unexpected drawbacks of the new generation of solid state HF equipment. Each item in the average shack was covered in detail.

The most interesting part of the discussion was on the transmitter/receiver combination. The new generation of solid state "no tune-up" rigs seem like a much simpler and better thing to use, with the elimination of the need to tune up when changing bands. As Mike pointed out however, this is accomplished by leaving out a circuit common to the older rigs, the output pi network. This often makes an external antenna tuner (which is basically the same as the pi network in the older rigs) necessary to use the newer rigs to full efficiency. The broadbanded nature of the rigs also hurts on the receiving end by making it more difficult to achieve a good dynamic range (dynamic range is the ability to keep out unwanted, off-frequency signals).

Another interesting technical topic will be covered at the May 1st meeting when our guest speaker will be Bruce Eggers, WA9NEW, who will speak about over the horizon radar (such as the infamous "Russian woodpecker"). He is involved with the U.S. Air Force over the horizon radar development program so his talk should be very knowledgeable and informative. Hope to see you there, May 1st, at 7:30 pm. □



K1FB discussing the ham shack at the March 6th club meeting.

Your editor would like to thank Jim Hatherley, WA1TBY, Pete Bradley, N1ADX, and Jim Idelson, K1IR, for responding with new material for the Spark Gap. Pete's contribution is the article on receivers clipped from the "Lowdown", which shows that it is not necessary for you to write yourself to help with material for the Gap. More contributions are still needed and welcomed. I know of several club members with new rigs which would make interesting reviews, and of course any topic related to radio is fine. Don't be just a taker, be a contributer!

MEETINGS THIS MONTH: _____

April 3, 1980 at 7:30 pm

April 17, 1980 at 7:30 pm

Intermediate Bldg., Wellesley Hills, Mass.

"New Tickets"



Congratulations to Pete Bradley, N1ADX, and Dave Kent, N2AWG, on recently upgrading to Advanced class.

Also, congratulations and welcome to the Amateur fraternity to the following members of our fall Novice class who have recently received their tickets: Susan Nacey, KA1ENO; Arthur Thompson, KA1ENP; Eric Cosentino, KA1EOA; Norman Knights, KA1EOB; and Josh Sable, KA1EOE. Hope to see you all take an active part in the club and in Amateur Radio in general! □

Hearabouts....

During the week of March 8th, Dick Paret, WA1ZLQ, and C.J. McDonald, WB1BUM, spent a great deal of time on the 63/03 repeater duplexers and as a result the range of the repeater has improved greatly. It also appears that it may be possible to run the repeater on high power without the receiver desense being too bad, but this will require some more testing. These two both deserve the thanks of all repeater users and club members in general where the repeater is a prime part of our emergency and public service capabilities.

Please make note of WARS President Bill Downing's new phone number of 655-3040 and address of 67 Washington Street, Natick, 01760. □

hr REPORT

Carlos Roberts, FCC Personal Radio Bureau Chief, had a key role in the ARRL Long Range Planning Committee's meeting in early March. Carlos told a dozen committee members and League officials that Amateur Radio suffers an "identity crisis" at the Commission, moving from its traditional role as technical innovators. Part of this could be communications, he added--many comparable groups are far more visible in Washington, and as a result are much more helpful to agencies like the FCC.

He questioned whether Amateur Radio

should remain as it now is (and whether it could grow further or had reached saturation), become broader and take in more of the public, or more narrow and technical. He also touched on the pertinence of Morse code and other current technical qualifications and commented that FCC enforcement efforts are not likely to increase so Amateur growth could heighten problems there. However, he noted, there are no good answers to the questions of self-enforcement.

Throughout the free-wheeling 2½ hour session Carlos took no hard and fast position himself, and all involved felt the meeting had provided an important interchange of ideas.

hr Report, March 14, 1980 □

The ARRL New England Convention is scheduled for October 4th and 5th at the Sheraton Foxborough. For more information, contact W1VRK.

hr Report, February 29, 1980 □

OFFICIAL BULLETIN

Nr 32, dated March 12, 1980:

The FCC has handed down a decision in the club, RACES, and military recreation station proceeding, Docket 21135. The Commission has decided that it will no longer license any new club, RACES or military recreation stations. However, FCC will continue to accept applications for renewal and modification of presently licensed stations. This decision, in effect, makes the temporary freeze imposed on the filing of applications for new club, RACES, and military recreation stations a permanent rule. Details will appear in May QST. □

ELECTRONICS EXCHANGE

For Sale: Drake C line, T4XC, R4C, and AC4 power supply with 250, 500, and 1500 Hz filters. Five extra crystals and spare set of finals. Mint condition. Contact Neal, K1NDF, 527-7731. For Sale: Icom IC-701 with power supply, mic, and special relay, in mint condition. \$1000. Contact Lewis, K1NDV, 235-4025. □

The Spark Gap

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THE "SPARK GAP" IS A MONTHLY PUBLICATION OF THE WELLESLEY AMATEUR RADIO SOCIETY. ITS PRIMARY PURPOSE IS TO KEEP ITS MEMBERS ABREAST OF CURRENT HAPPENINGS, F.C.C. RULES & REGULATIONS CHANGES, AND TO LIST EQUIPMENT OFFERED FOR SALE OR TRADE BY MEMBERS. MEMBERS ARE ENCOURAGED TO CONTRIBUTE TO THE "SPARK GAP" AND MAY SENT THEIR ARTICLES (TYPEWRITTEN IF POSSIBLE) TO THE EDITOR-IN-CHIEF OR TO THE CLUB ADDRESS.

THE WELLESLEY AMATEUR RADIO SOCIETY IS A NON-PROFIT ORGANIZATION DEDICATED TO THE PROMOTION OF AMATEUR RADIO THROUGH INSTRUCTION, FELLOWSHIP, DEMONSTRATION, AND ENCOURAGEMENT OF PARTICIPATION. ANNUAL MEMBERSHIP IN THE SOCIETY IS \$8. THE CLUB YEAR RUNS SEPTEMBER 1 TO AUGUST 31. AMATEUR NOV-ICE AND GENERAL CLASSES ARE CONDUCTED REGULARLY AT NO COST. TO ENROLL IN A CLASS, OR GAIN INFORMATION ABOUT THE SOCIETY IN GENERAL, WRITE:

THE WELLESLEY AMATEUR RADIO SOCIETY
324 WASHINGTON STREET
WELLESLEY HILLS, MASS. 02181



Auctions / Flea Markets

APRIL 12: Our own WARS auction. Come down to the Wellesley High School early and help out!

APRIL 19: South Shore Repeater Association auction, check in from 9:00 am to noon, auction at noon. Central Jr. H.S. on Broad Street, Weymouth. Talk in on 147.90/30 and 146.52.

APRIL 25: Central Mass. ARA auction, starts at 7:30 pm. Main South American Legion Post #341, 1024 Main St., Worcester, Mass.

APRIL 27: Framingham ARA spring flea market, rear of Framingham police headquarters. Set up 9:00 to 10:00 am, doors open 10:00 until 2:00.

MAY 4: Flea market and auction. Flea market from 9:30 am until 1:00 pm, auction at 1:30. Knights of Columbus Hall, Columbus St., Fall River. Talk

in on 146.31/91 and 146.52. Sponsored by Bristol County Amateur Radio Association.

MAY 10: The 7th annual Hoss Traders tailgate swapfest, Deerfield Fairgrounds, Deerfield, N.H. Admission is \$1.00 for all. Talk in 146.40/147.00, or 146.52. Questions and map send an SASE to Norm Blake, WA1IVB, P.O. Box 32, Cornish, Maine 04020. □

Executive Minutes

Meeting of March 5, 1980:

The meeting was opened at 7:41 pm by President Bill Downing, WA1PQY.

It was announced that the new Nov-ice class would begin March 11 and be held Tuesday nights at 7:00 pm at the club.

It was announced that the auction notices were printed and that Tufts Radio, Heathkit of Wellesley, and You Do It Electronics had sponsored ads.

On the subject of the BAA marathon it was announced that a meeting was being held concurrently with this one and Don Chesley, WA1HVS, was attending.

The status of the repeater was discussed.

The meeting was closed at 9:45 pm.

Minutes

Meeting of March 6, 1980:

The meeting was opened at 7:50 pm by Vice President Nels Anderson, K1UR, in the absence of the president.

The treasurer's report was read.

It was announced that a town meeting on April 14 would include a discussion on the future of the Intermediate Building where the club is currently housed.

A discussion on Field Day sites was held, with the majority seeming to favor a local site this year.

Kevin Kelly, WA1YHV, discussed the upcoming auction and asked for volunteers to work at the auction and to distribute notices.

Don Chesley, WA1HVS, discussed the BAA marathon.

The remainder of the meeting was devoted to a talk by Mike Adlerstein, K1FB. □

THE RECEIVER

by W.R. McIntosh

(From "The Lowdown" of the Longwave Club of America)

I've been actively DXing and working with whatever radio equipment I could lay my hands on for over 51 years now. I have seen and listened to a lot of electronic history. I've been fascinated as a spectator and participant while:

1. Crystal sets gave way to TRFs (TRF stands for tuned radio frequency.) I well remember when my Dad gave up on a combination crystal and tube set he built and bought a commercial TRF receiver.
2. Headphones gave way to loudspeakers in family radios so everyone could listen at once. I can remember one TRF fitted with four pairs of Brandes headphones.
3. Massive banks of batteries, chargers, and battery eliminators gave way to radios powered directly by 110 volt AC. Most of those first AC powered sets had bad power hum coming from their speakers.
4. TRFs gave way to superhets and regenerative receivers became less popular. You could actually hear something on short wave besides wall to wall whistles from every experimenter for miles around.
5. Transistors are replacing tubes. Tubes are putting up a hard fight but they are as doomed as the cat's whisker crystal. They require too much power, produce radio-destroying heat, and require expensive periodic replacement and maintenance. A transistor receiver may require warranty work in the first year but after that should last indefinitely if treated kindly with switches cleaned and pilot lights replaced.

The purpose of all this history is to set the stage for the opinions and remarks I heard--and occasionally made. In 1928--"You can have those stupid TRFs. They may be more convenient but if you want good reception use a good old crystal set and headphones." In 1932--"You can have those noisy superhets. If you want good music quality you have to use a TRF." In 1933--"The manufacturers are using

such cheap parts and skimping on everything they can. If you want a decent radio you have to build your own." In 1936--"Nuts to those distorting multi-grid tubes. If you want good music quality you have to use all triodes.

In any year--"If the manufacturer would just spend 25¢ more for a filter capacitor (or 69¢ for a switch, or 19¢ for a choke coil, or--??) then that would be a really good receiver."

Hmm--anything sound familiar? There have always been those who preferred older equipment with which they were more familiar or which had a lower price. Fortunately for developing technology and the workers' jobs there have also been those who couldn't sleep nights until they had the newest and fanciest Hummodyne Signal Snatcher. I get a number of letters and phone calls from those who are agonizing over which radio to buy. Let's start right off with some basic truths about radio receivers:

1. If all the club members in the world got together they would only number a few thousand. That is not enough to have much clout with the large manufacturers. They think in terms of tens and hundreds of thousands.
2. History is strewn with the dead bodies of companies who went broke trying to build the perfect radio at a reasonable price. One problem is that few hobbyists agree on just what the perfect radio would do and be. Let's see now--double ganged RFs, range from 1 to 30,000 kHz, balanced mixer, direct digital readout, variable IF bandwidths from 0.1 to 10 kHz, synchronous AM detector, hi-fi audio with active filter (about six adjustments would be nice), crystal controlled fixed and calibrated variable BFOs, sensitive enough to hear a cat meow in Moscow, and selling for \$79.95. Would you buy it? Who wouldn't?
3. It costs a lot of money to design a radio, build prototypes, test them thoroughly, redesign, get into production, distribute, and sell. While the advertising department is dreaming up those spec sheets we drool over, the financial department is screaming, "Quit fixing and perfecting that thing and get it out the door. We have to

get some money coming in or you and I will both get fired."

4. It takes time and practice to get familiar with a new radio design.

5. If a specific radio doesn't seem to work well don't assume that its design is faulty. It may just need repairs and alignment. This is particularly true of old tube sets. Their performance can degrade slowly over a long time.

So--where does all of this leave us? We introduce two important terms, "stock" and "customized". A stock receiver is one right off the shelf that is just like the manufacturer built it and shoved it out onto the shipping dock. It is less than perfect and probably not too well aligned (they didn't have time to troubleshoot, age and stabilize). If you buy a stock receiver plug it in and turn it on and let it "bake out" for four weeks continuously. Then, by hook or by crook, get it tested, realigned, and recalibrated.

The customized receiver is one that has been individually worked over and modified to your specifications and roughly "baked out" and realigned. The customizers take advantage of a basically good receiver. What they do is correct spots where the manufacturer's design fell short or where too much money was saved to keep the price down.

A stock receiver that costs the manufacturer about \$150 to build will cost you about \$350 off the shelf. Advertising, distribution, sales and warranties, and profits all along the line add up. Customizing may add \$50 to \$250 to the cost. So why didn't the original manufacturer add in those few better parts and take more time and do a better job? Because most of their customers don't know any better and look mostly at the price tag when deciding what to buy. Most radio buyers don't understand spec sheets anyway and are more impressed by a fancy case and panel design.

Now that we have stock versus customized explained let's point out that there are specialty manufacturers who dwell in between. They use higher technology, take more care, produce fewer receivers, and listen better to fussy DXers. Both Drake and Collins,

for example, produce "professional" receivers that are polished gems produced only in small quantities. If you don't like the cost range from \$3500 and up you just lost interest there. Except there is at least one manufacturer, McKay Dymek, that has staked out the range of about \$900 to \$1800 and will give loving care to your needs. Here is a blend of manufacturer and customizer all in one firm. From time to time other limited run specialty manufacturers (Harris, Raytheon and others) come out with fine receivers for commercial and professional use. Their prices tend to be up in nosebleed territory. □
(Part 2 next month.)

FIRST QSO

by Jim Hatherley, WA1TBY

Since we have been holding Novice classes, we have had a lot of people take advantage of them and have gotten their Novice tickets. Some have gone on the air, while others have not. In some cases, the reasons for not having been on the air was for lack of equipment, and for others, they just didn't seem sure enough of themselves as to their cw abilities to conduct a QSO and consequently, haven't sent the first dit over the air. This article is addressed to you.

First of all, for those of you having no equipment, we have that in the club room. Just make an appointment so we can have a control operator present when you wish to use the club station. And, for those of you who are unsure of yourselves, look into the club roster and give someone who lives nearby a telephone call and discuss your problems. I'm sure they will be glad to help, as we were all Novices at one time or another. After all, that's what ham radio is all about, helping others.

Now for your first attempt at a QSO. We start off sending only in a speed as fast as you are capable of copying. Do not send faster or the other station will assume you can copy at that speed. As a result, you will be at a loss as to what he was saying. Remember to keep your characters clear so that --. sounds like a "C" and not

two "N's" or a "Y". The reason for this is if a person hears poor cw characters from a station calling CQ, he just won't bother to answer, so keep your signals intelligible. Now, let's start off with our first CQ (which means "calling any station, come back to my call"). Here is how we do it:

CQ CQ CQ DE WA1TBY WA1TBY CQ CQ CQ DE WA1TBY WA1TBY K. You will note that we sent three CQ's followed by the callsign twice and we sent it twice and then a K which means "come back". Now you listen to see if any station is answering your call. If nothing is heard, repeat the above procedure until someone does. You can also do the opposite and listen in on the band for a station that is calling CQ and answer him back. Either way you will get in a QSO.

Okay, someone has heard me and answers, WA1TBY DE KA3BBB K. So we now go back to that station and say, KA3BBB DE WA1TBY (since we now know his call and he knows mine, there is no need to send the calls more than once) TNX FER CALL (thanks for call) UR RST RST 579 579 (your readability, strength and tone are 579, these numbers are available in back of your ARRL log book) BT QTH QTH IS BOSTON MASS BOSTON MASS BT NAME NAME IS JIM JIM BT HOW COPY? AR KA3BBB DE WA1TBY K.

Now he comes back WA1TBY DE KA3BBB R (roger, or received) UR RST RST IS 589 589 BT QTH QTH IS DENTON PA DENTON PA BT NAME NAME IS BRIAN BRIAN BT MY RIG IS A HEATHKIT HW101 INTO A DIPOLE ANTENNA BT HW CPY? AR WA1TBY DE KA3BBB K.

KA3BBB DE WA1TBY R SOLID CPY (or, if you found him too fast and missed something, do not R him, instead say QRS MISSED UR QTH) BT RIG HR IS DRAKE TR4C DRAKE TR4C INTO AN INVERTED VEE UP 55 FEET BT WX (weather) HR IS SUNNY TEMP ABT (about) 32 DEGS F BT PSE (please) QRS ES (and) RPT (repeat) UR QTH AR KA3BBB DE WA1TBY K.

WA1TBY DE KA3BBB R MY QTH IS DENTON PA DENTON PA BT AGE HR IS 17 YRS OLD ES WORK IN A SHOE SHOP WHAT ABT U JIM? AR WA1TBY DE KA3BBB K.

KA3BBB DE WA1TBY R NICE SPEED TNX QRS AGE HR IS 23 YRS ES U ARE MY FIRST QSO BT GOT MY NOVICE TICKET JUST 2 MONTHS AGO ES AM JUST GETTING STARTED

BT I WOULD APPRECIATE YOUR QSL CARD TNX BRIAN AR KA3BBB DE WA1TBY K.

As you get into the contact you will, no doubt, have other things to talk about and you will have found a new friend out there. Finally you can sign off with something like this, KA3BBB DE WA1TBY R GUESS AM JUST ABOUT TALKED OUT SO TNX FER NICE CHAT AND HPE TO C U AGN 73 ES HVE NICE DAY SK KA3BBB DE WA1TBY SK.

Basically, that is all there is to it and once you have broken the ice, then all the rest will be pure enjoyment and before you know it, you will be copying fast enough to go on to your General or higher license. Get your feet wet as no one is goint to stomp on you and remember, have fun. Happy hamming! □

hr REPORT

Amateur Radio's new 10 MHz band should be limited to cw only, the IARU Region 1 Executive Committee agreed at its London Meeting in late February, to provide maximum utilization of the shared 50 kHz allocation when it becomes available January 1, 1982. No action is likely by Region 1 Amateur organizations until April, 1981, however, when the next Region 1 Triennial meeting is scheduled.

Strong support for an all-cw "30 meter" band has also been registered by U.S. Amateurs who have written ARRL headquarters. A "10 MHz ad hoc committee" has been appointed by ARRL president W2HD to study how the band can best be utilized. Suggestions that 10 MHz be kept out of 5BDXCC and contests have already been made to the DXAC and CAC; other comments can go to W4WHN, chairman of the committee.

hr Report, February 29 and March 7

U.S. Amateurs operating in Canada must use "the callsign, radio frequencies, type of emissions, and modes of transmission he is authorized to use in his own country, if those frequencies, types of emissions, or modes of transmission are authorised by these (DoC) regulations." Thanks CARF News Service.

hr Report, March 7, 1980□

OLDE TIME RADIO

by Jim Idelson, K1IR

(Editor's note: The following is the first of a series of articles taken from Jim's paper "The Early Development of Commercialism in Broadcasting". Although this would not seem to relate directly to Amateur radio, in fact in the early days Amateur and commercial radio were often indistinguishable.)

The man who led the way in bringing the technology of radio into the homes of the masses was Dr. Frank Conrad, assistant chief engineer at Westinghouse Electric and Manufacturing Company. Dr. Conrad set up 8XK, an experimental station in his garage, which was used for his Amateur radio experiments as well as tests of military equipment used during World War I. Conrad later began to play recorded music and make regular talks over 8XK. Soon he announced, in advance, a series of programs which he called "broadcasts". This was the first use of the m.

Dr. Conrad had been in charge of the research in wireless telephony at Westinghouse during the war. With the decline in manufacturing of radio equipment after the war, he was now moved to the switch division.

Years before, in 1912, Conrad's interest in wireless was piqued by a desire to receive wireless time signals from Arlington, Virginia. He constructed a receiver for this purpose, which became an object of experimental interest to him. He began experiments to engineer a wireless telephone transmitter. The equipment he was building required tests over a distance of several miles. By setting up two stations, one at the Westinghouse plant and the other in his garage at home, Conrad was able to make his tests over a path of about four or five miles.

Since the war had ended it was possible for Amateurs to be relicensed. Conrad did so. His station became 8XK

April 1920. As his tests continued, he found that there were a number of other amateur experimenters in the area, some just listening, others capable of communicating with him. In the

summer of 1920, after he had begun playing phonograph records on the air, his listener response was becoming an annoyance. There were requests for transmissions at special times and other oddities. To help solve the problem of special requests, Conrad announced that he would be making regular transmissions every Wednesday and Saturday evening at 7:30. He would broadcast for two hours at a time.

When Conrad's supply of program material got low, the Hamilton music store offered a nearly endless supply of records for his use. In return, he made mention of the store at times during the transmissions. The dealer's sales rose tremendously, especially sales of the records which had been lent to Conrad. This was the first recorded promotional announcement made via radio.

Conrad's two sons, Francis and Crawford, helped with the operation when their father was too tired to make a broadcast. They seized the opportunity with vigor. They recruited local talent and added a great deal of variety to the programs. The listeners found it refreshing to hear voices other than that of Dr. Conrad. As the Conrads became more competent in their ability to please their public, the number of listeners grew tremendously.

Word of Conrad's success got back to the officials at Westinghouse. Mr. Harry Davis, Vice President, was most interested. Mr. Davis decided to build a more powerful transmitting station than the one used by Dr. Conrad at home and try it out a little more thoroughly just to see what there was to this business - the thought being to promote sale of home receivers.

Soon Davis had gotten Westinghouse to establish a station whose call sign became KDKA. Thus began the first commercial broadcast station.

(Continued next month.)

Amateurs must still send the other station's call when ending a contact, despite an item in a recent DX newsletter that notices of such violations during the recent ARRL CW DX contest were being held pending new rule making. Though proposals to relax the requirement have been made, they are opposed by the FCC Field Bureau.

education corner

We now have another novice class in progress. It is being conducted by Kevin Kelly, WAIYHV and Eric Thoreson, KLOGF. The class meets at the club room on Tuesday nights at 7:00 P.M. You are invited to spread the word for anyone interested in getting into ham radio.

Also, starting March 26th, there will be a General License Tutorial at 7:30 P.M. on Wednesday nights and will last about an hour. A tutorial is actually a seminar where those of you who have been aspiring to get your General tickets but have questions, may attend this seminar and ask questions of Bill Downing WAIPOY or Glenn Brodie, N1ACN regarding the same. This is not a general class course but rather a tutorial to help you along with your home study for General. This Tutorial is expected to run for about seven weeks. Again, spread the word around regarding this as it can be a very rewarding experience for those of you who wish to upgrade. Depending on the show of interest, we could then consider doing the same for the Advanced and Extra courses.

Hearabouts....

John O'Brien, ex-KALBDE is back home again and is heard on 2 meters using his new call of N1AWX.

Enclosed is a copy of our flyer on our auction. You will notice the date is April 12th. This auction is a big thing as it helps defray the costs of operating the club each year. Your presence is earnestly expected as we have many areas where manpower is necessary. Please try to make the next meeting on April 3rd to see where you can fit into the overall picture.

Finally for a chuckle. At the meeting of March 20th, posted on the bulletin board was a post card from the ARRL stating that Jim Hatherley, WAI TBY was now a silent key. It was quite sad until in walked Jim, a little late for the meeting to be sure, but very much alive and kicking. Jim said, "Well it isn't everyone who can see his obituary about being a Silent Key."

See you all at the next meeting gang.